

Executive Summary

Alignment of Postsecondary Education and Employment

The Legislative Program Review and Investigations Committee voted to conduct a study examining *Alignment of Postsecondary Education and Employment* in April 2009. Numerous reports have identified an increasing gap between how well Connecticut prepares its workforce and the demands of current and near-future employment. The focus of the study was to determine whether a formal alignment mechanism exists in Connecticut to match the production of skilled graduates from the state's higher education institutions with the current and projected workforce needs of the state's employers. The study also assessed current workforce supply and employer needs, and reviewed whether pathways exist for technical high school graduates to pursue postsecondary education certificates and degrees. Finally, it offers recommendations to improve alignment.

Postsecondary Education System

Connecticut has 18 public degree-granting institutions and 29 independent colleges and universities, with approximately 185,000 students. The Board of Governors for Higher Education (BGHE) is the central policymaking authority for public higher education in Connecticut. It serves as a coordinating body for all of the public and independent colleges, universities, and postsecondary institutions of Connecticut. The public system of higher education is organized into four constituent units, each with its own board of trustees: the University of Connecticut; the Connecticut State University System; the Connecticut Community College System; and State Academic Awards. The technical high schools fall under the State Board of Education, Connecticut's governing board for K-12 public education.

Existing Alignment Structure

Attention to the importance of the relationship between postsecondary education and employers is not new. Proposals have been put forth by Connecticut's policymakers since at least 1982 with the creation of the Governor's Commission on Higher Education and the Economy. In addition to efforts by policymakers to require alignment through legislation, there are also numerous linkages that exist outside of the statutes between independent postsecondary institutions, business organizations, and individual employers.

The current state organizational structure to facilitate the coordination of postsecondary education with workforce development issues involves a myriad of agencies, boards, higher education institutions, offices, councils, and commissions. None, however, have authority to implement across-the-board strategies, policies, or programs, so this "system" of aligning postsecondary education and employment has occurred in a piecemeal manner. For example, Connecticut currently has multiple state agencies involved in projecting demand, identifying the current state of the workforce, and funding programs for a variety of workforce development initiatives.

Alignment Analysis Results

For this report, the committee compared projected workforce demand for certain selected occupations and whether there was an under- or over-supply of postsecondary graduates with the required skills and knowledge available to meet projected demand. The committee found an overall lack of alignment of postsecondary education and employment for a majority of the occupations examined. (Excluded from this alignment analysis were the many broad college majors that lead to employment in a multitude of occupations.) While some occupations, such as registered nurses, appeared to be particularly well aligned, the majority of occupations examined seemed to have an oversupply (elementary school teachers) or undersupply of workers (industrial engineers).

Barriers to Alignment

The committee identified a number of barriers contributing to the misalignment of postsecondary education and employment. Solutions were recommended to overcoming these barriers, drawing on lessons learned from the detailed examination of the strategies used to successfully align postsecondary education and employment in the nursing profession as well as information learned in studying the emerging green collar jobs field.

1) Barriers Related to Elementary and Secondary School Students – An increasing number of new college students are unprepared for college-level work and are enrolled in remedial or developmental courses. This lack of preparedness can be traced back to elementary and secondary schools, where *an increasing number of students as young as fourth graders do not score as well in science, math, and reading compared to students in other New England states*. Recommend:

- strengthening high school graduation standards; and
- increasing efforts in high school to reduce the need for remediation in college.

2) Barriers Related to Postsecondary Education Institutions – The increasing number of new college students unprepared for college-level work has led to *an increase in the need for remedial or developmental courses*. Recent figures from community colleges indicate *less than half of students, for example, are passing remedial or developmental math courses, a contributing factor to low graduation rates*. Recommend:

- using computer assisted tools and contextual learning for remedial coursework; and
- using peer tutors and implementing an early warning system when students appear to be struggling.

3) Difficulty in Making Accurate Demand Projections – In general, *the ability to forecast 10 years out the types of jobs that will be available in the future is limited*, with projections accurate only about one-third of the time. There may also be a *lack of awareness or limited use of these projections* by postsecondary education institutions and students. Recommend:

- consider using job-vacancy rate data when making short-term workforce demand projections;
- annually compiling teacher shortage area data for at least the past five years and making teacher preparatory programs aware of this information;
- exposing many more high school and college teachers, counselors, and administrators to Connecticut Department of Labor job demand information by changing to an electronic distribution of the report; and
- asking high school guidance counselors, college admission officers, and college career counselors what information and in what format would be most helpful to students in making career decisions.

4) Current Economic Challenges – *Major events such as the recent recession, negatively impact job openings, particularly in certain sectors, like construction and manufacturing.* Current economic conditions might also be impacting college enrollment and decisions of high school students to attend in-state or out-of-state, and to begin postsecondary education at the less-expensive community college versus the four-year state university.

5) Barriers Related to State Agency Organization, Programs, and Policies – *Connecticut's system for public higher education is very decentralized with decision-making occurring at the college or constituent unit level. Budgetary allocation decisions are made at the constituent unit level based on enrollment and other factors, but not on outcomes.* Recommend:

- developing a master strategic plan that links the roles of the separate constituent units and includes how the higher education system relates to the P-12 system and workforce needs of the state;
- developing strategies in the plan, along with the four constituent units, to implement if colleges and universities fail to make progress on the specific accountability measures already being reported;
- in the future and within available appropriations, establishing a pilot program within the Department of Higher Education to be used at the discretion of the commissioner, to reward colleges, universities, or systems that are meeting pre-established accountability goals;
- examining whether academic programs or career pathways need to be established in order to meet the workforce needs of competitive sector-based employers in Connecticut, based on information developed by the Office of Workforce Competitiveness; and
- requiring the Connecticut Community College System to examine the feasibility of transferring the adult education programs currently offered by the technical high schools, including the licensed practical nurse program, to the community colleges.

Selected In-Depth Reviews

Because of the broad nature of the study, the committee decided to examine two areas in depth to see if there were successful state strategies that better align postsecondary education with the needs of Connecticut's employers, for the possible application to other occupational shortage areas. The two areas selected for intensive review were the emerging field of green collar jobs, and the nursing field because the state implemented a number of strategies over the last decade to increase the number of nursing graduates.

Green Collar Jobs. Green collar occupations are a less established, emerging field. The following questions were used to answer the four "D's" of the green collar field:

1. What is **driving** the green movement?
2. How are green jobs **defined**?
3. Who is **developing** the green collar field and where will the job opportunities be?
4. What green collar job education and training is being **delivered**?

Driving. The committee identified a number of factors that are **driving** the move towards green collar jobs: federal stimulus funding from the American Recovery and Reinvestment Act of 2009; Governor Rell's Executive Order No. 23, which established a blueprint for green collar jobs creation; recent Connecticut statutory changes promoting green building code requirements, and implementing green strategies through the Connecticut Clean Energy Fund and the Connecticut Energy Efficiency Fund; and private sector companies and initiatives in the energy sectors.

Defining. There are a multitude of green collar job definitions, but in general, green collar jobs occur in settings with a goal of improving or preserving the environment by using less energy (energy efficiency) and/or alternative sources of energy that are not harmful to the environment (renewable energy). Green collar jobs can fall into one of three categories:

- green *increased demand* occupations – existing occupations performed within a green setting (e.g., chemical engineers);
- green *enhanced skills* occupations – existing occupations requiring additional green skills and knowledge, and perhaps new credentialing (e.g., plumbers); and
- green *new and emerging* occupations – new occupations that arose due to the green economy (e.g., carbon trading analysts).

The present general lack of consensus on what constitutes a green collar job has led to varied estimates on the current size of Connecticut's green collar workforce, ranging from 5,493 to more than 22,000 individuals.

Developing. There are many state agencies and private organizations developing green collar job initiatives in Connecticut. In addition, consortiums and partnerships are currently being formed or shaped. The Connecticut Business and Industry Association and private companies are also active in developing the green collar field.

Delivering. Overall, higher education institutions are delivering education and training for green collar jobs in several ways. First, many colleges and universities offer majors or minors in directly related fields, such as environmental engineering, as well as more general fields that have a green component, like marine biology. Many postsecondary schools also offer certificate programs or individual courses to add or enhance students' green collar skills and/or knowledge. A few colleges and universities have established centers or institutes directly related to renewable energy, energy efficiency, or other green areas (e.g., Institute for Sustainable Energy at Eastern Connecticut State University).

Education and training for green collar jobs is also being delivered by the technical high schools, Connecticut Clean Energy Fund, for-profit institutes, unions, and national training organizations. The committee found several possible barriers to alignment in the green collar jobs area:

- *Lack of awareness or understanding of what green collar jobs are by elementary and secondary school students, parents, teachers, and guidance counselors;*
- *Lack of uniform naming of new green certificate programs;*
- *No central repository for the many green initiatives emerging across higher education (e.g., new degree and certificate programs and stand-alone courses, green-related equipment, and new center/institute initiatives);*
- *Few resources apart from ARRA stimulus funds to purchase the expensive equipment required to train students;*
- *Lack of career ladders/lattices to move individuals out of entry-level green collar jobs that are dependent on temporary ARRA funding; and*
- *Lack of awareness by colleges of green efforts occurring within other colleges in different higher education systems.*

State Efforts to Address Workforce Shortage of Nurses. The second area examined in-depth was the assortment of strategies used to increase the number of nursing program graduates to address a serious nursing shortage that began in the late 1990s. The purpose of this review was to determine if similar strategies could be adopted for other workforce shortage areas.

Active participants in developing solutions to the potential public health crisis beginning in the late 1990s included the executive and legislative branches of government, the education and higher education departments, the four higher education constituent units (acting in concert and independently), independent colleges and universities, and the state's hospitals and other health care facilities.

The efforts dramatically boosted graduation from RN and LPN programs. In the 2007-08 academic year, there were 1,118 graduates of entry-level RN nursing programs in 2007-08 compared to 594 graduates in the 2000-01, the low point over the ten years examined by the committee. The number of students graduating from licensed practical nursing programs also increased dramatically, with 727 individuals passing the practical nurse national exam in 2008 compared to 318 graduates in 1998.

Strategies that contributed to the success of increasing graduates of nursing programs to meet employer demand included:

- public advertising campaigns to increase awareness of nursing as a career;
- initiatives at the high school level to interest students in health careers, including nursing;
- aggressive pursuit of funding by colleges and universities, to provide tuition assistance, student advising, and targeted tutoring with the aim of improved student retention;
- federal and state scholarships and loan forgiveness programs;
- grants to colleges and universities to establish or expand their nursing programs;
- collaborative partnerships between colleges and universities with nursing programs and area hospitals; and
- a formal mechanism, the Allied Health Workforce Policy Board legislatively established in 2005, allowed for members to communicate and share strategies, and propose solutions as a unified body.

Committee Recommendations

The committee adopted a total of 24 recommendations. Taken together, they are aimed at addressing the five possible barriers to alignment identified above.

- 1. Wherever possible, the U.S. Department of Labor taxonomy and EE/RE categorization should be incorporated into explanations of green collar jobs.**
- 2. The Connecticut Community College System should implement uniform naming of green certificate programs across all member colleges.**
- 3. The Connecticut Employment and Training Commission and the Connecticut Energy Sector Partnership should regularly solicit and make widely available information on green efforts occurring among the higher education institutions including new degree and certificate programs, stand-alone courses, and center/institute initiatives useful in the alignment of green collar jobs and employer needs.**

- 4. Educational systems should develop agreements to share equipment needed for students training for green collar jobs, such as solar photovoltaic installation.**
- 5. Connecticut postsecondary education institutions and state workforce development agencies should, wherever possible, support efforts to create career ladders and lattices in the green collar fields, particularly for those workers who gained entry into the system through temporary ARRA grant opportunities.**
- 6. The Departments of Higher Education and Education should prepare an annual cross-system list of green courses, certificates and majors offered, and inventory of green-related equipment.**
- 7. Staff from both the University of Connecticut Center for Clean Energy and the Institute for Sustainable Energy at Eastern Connecticut State University should meet at least quarterly to discuss possible ways to collaborate on green initiatives. Staff from other institutions and centers located within the same regions should also form partnerships and meet to develop collaborative efforts.**
- 8. Connecticut should pass legislation reforming Connecticut high school graduation requirements as recommended by the State Department of Education in their proposed high school redesign.**
- 9. All Connecticut high school juniors should be encouraged to take the Accuplacer or comparable test. Students may use their remaining time in high school to take additional preparatory coursework, utilize software programs such as KeyTrain, or a combination of these strategies to avoid remedial coursework in college.**
- 10. Computer-assisted preparation programs such as KeyTrain should be promoted at all the community colleges. Results should be monitored for two years to determine whether use of the selected computer-assisted preparation program should be continued.**
- 11. The Connecticut Community College System should consider replacing stand-alone remedial courses with introductory credit courses that integrate remedial skills instruction.**
- 12. Connecticut colleges should implement no- or low-cost initiatives to improve graduation rates. Success or failure of efforts should be shared with all colleges on the DHE website.**
- 13. The State Department of Labor should continue to pursue development and use of an electronic job vacancy methodology to provide current and near-future information on job demand in Connecticut.**

- 14. The State Department of Education should annually compile and electronically distribute to all Connecticut public and independent colleges with teacher preparatory programs information for at least the past five years on teacher shortage areas.**
- 15. The State Department of Labor should electronically mail the “Soaring to New Heights” report to all state high schools and colleges, returning to the earlier format that includes information on teacher occupations in demand.**
- 16. The State Department of Labor should survey high school guidance counselors, college admission officers, and college career counselors to determine what information and in what format would be most helpful to students in making career decisions.**
- 17. C.G.S. Sec. 10a-11b establishing the Blue Ribbon Task Force and requiring the task force to develop a strategic master plan every five years shall be repealed and its responsibilities, along with its reporting requirements, be transferred to the Board of Governors for Higher Education.**

C.G.S. Sec. 10a-6(a)(2) requiring the Board of Governors for Higher Education to develop a master plan shall be amended to include the word “strategic.”

The goals that the Board of Governors for Higher Education, the Blue Ribbon Task Force, and the Accountability Measures are required to promote, shall be blended into a single set of goals that the strategic master plan should address. The goals identified in C.G.S. Sec. 10a-6(b) for the accountability report shall be adopted and amended to include the goal of protecting academic freedom and maintain standards of quality ensuring a position of national leadership for state institutions of higher education.

On or before January 1, 2011, and every five years thereafter, the Board of Governors for Higher Education shall prepare a higher education strategic master plan for the state. The plan shall be prepared in consultation with the Higher Education Coordinating Council, which includes the commissioner of the Department of Education and the Secretary of the Office of Policy and Management, and the commissioners of the Departments of Labor, and Economic and Community Development, the director of the Office of Workforce Competitiveness, the chairpersons and ranking members of the Higher Education and Employment Advancement and the Commerce committees, and the chairperson of the board and president of the Connecticut Conference of Independent Colleges, and the president of the Connecticut Business and Industry Association, or their respective

designees. The Board of Governors for Higher Education may consult with other entities as determined by the board.

The plan shall be submitted to the Governor and the Commerce, Education, Higher Education and Employment Advancement, and Labor Committees.

The board shall report biennially on progress made toward achieving the benchmarks in the strategic plan.

18. C.G.S. Sec. 10-6b(g) shall be amended to require each constituent unit of the state system of higher education and the Board of Governors for Higher Education to submit strategies to improve performance and achieve results on unmet goals or performance measures as part of its annual accountability report to the commissioner, along with funding estimates for each proposed strategy. The commissioner of the Department of Higher Education shall include these strategies in its annual consolidated report to the Higher Education and Employment Advancement Committee. The commissioner shall also submit the report to the chairpersons and ranking members of the Commerce and Education Committees.

19. Beginning July 1, 2010, the Higher Education Coordinating Council shall review the accountability measures developed under C.G.S. 10-6(b)(g), and every five years thereafter, determine their continued validity, or need for revision. Any revisions or deletions shall be submitted to the Board of Governors for Higher Education for approval.

Upon BGHE approval, the commissioner of the Department of Higher Education, on behalf of the council, shall notify the committees of cognizance on any measures that were revised or deleted, with a brief explanatory statement.

The Achieving Results Higher Education Counts report should include a letter grade or other symbol that represents, at a glance, whether or not the goal is being achieved.

20. The Higher Education Coordinating Council should be reconstituted in accordance with C.G.S. Sec. 10a-6a.

21. Within available appropriations, a pilot program shall be established within the Department of Higher Education to be used at the discretion of the commissioner, to reward colleges, universities, or systems that are meeting pre-established goals.

22. The Office of Workforce Competitiveness, in consultation with the Connecticut Employment and Training Commission, the Departments of

Higher Education, Education, Labor, and the Economic and Community Development, shall identify the sectors or sub-sectors in which career pathways need to be established, the workforce skills needed in those sectors, and the types of postsecondary programs that need to be developed to address the workforce needs in those sectors. The information shall be provided to the Board of Governors for Higher Education biennially.

23. Using information developed by the Office of Workforce Competitiveness, the Higher Education Coordinating Council shall make recommendations to the Board of Governors for Higher Education regarding postsecondary certificates and/or degree programs needed to address any shortages, or if existing programs lack capacity to address shortage areas.

24. The Connecticut Community College System, in consultation with the commissioners of the state Department of Education and the Department of Higher Education, and the superintendent of the Connecticut Technical High School system, shall examine the feasibility of transferring the adult education programs currently offered by the technical high schools, including the licensed practical nurse program, to the Connecticut Community College System.

The Board of Trustees for the Connecticut Community College System shall report to the legislative committees of cognizance on the feasibility of such a transfer including the cost of such transfer, the number of employees that would be impacted, and if such a transfer occurred, the geographic locations where the programs could be offered by October 1, 2010.